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MONDAY APRIL 26, 1993

SpaceNews originates at KD2BD in Wall Township, New Jersey, USA. It is published every week and is made available for unlimited distribution.

* STS-55 NEWS *

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The primary goals of the STS-55 mission are to perform studies in materials and life science research. A 9 day flight of Space Shuttle Columbia is planned. Launch is scheduled for 24-Apr-93 at 14:52 UTC.

The following are the prelaunch predicted elements for STS-55, provided by Robert Kliman at JSC. STS-55 will also carry SAREX and should provide more opportunities for contacts, especially packet. On this flight there are two amateur radio antennas, one in the flight deck window and one external antenna on the spacelab module in the payload bay.

STS-55

1	00055U	93114.67000478	.00120200	00000-0	36300-3 0	69
2	00055	28.4697 267.1108 0003812	314.2100	45.8202	15.90487610	22

Satellite: STS-55

Catalog number: 00055

Epoch time: 93114.67000478 = (24 APR 93 16:04:48.41 UTC)

Element set: JSC-006

Inclination: 28.4697 deg

RA of node: 267.1108 deg Space Shuttle Flight STS-55

Eccentricity: .0003812 Prelaunch Keplerian Elements

Arg of perigee: 314.2100 deg Launch: 24 APR 93 14:52 UTC

Mean anomaly: 45.8202 deg

Mean motion: 15.90487610 rev/day G. L. Carman

Decay rate: 1.2020e-03 rev/day*2 NASA Johnson Space Center

Epoch rev: 2

G.L.CARMAN

The seven person crew on STS-55 includes ham radio operators Steve Nagel, N5RAW, Jerry Ross, N5SCW, Charlie Precourt, KB5YSQ, Hans Schlegel, DG1KIH and Ulrich Walter, DG1KIM. SAREX operations planned on this flight includes 2-meter voice and packet. The primary voice callsign will be N5RAW. The packet radio callsign is W5RRR-1.

The 2-meter FM voice and packet downlinks for the SAREX station are on 145.550 MHz.

Uplinks are:	Voice	Packet
Europe	144.80 144.75 144.70	144.49
Rest of World	144.99 144.97 144.95 144.93 144.91	144.49

Note: The crew will not favor any specific voice uplink frequency, so your ability to communicate with SAREX will be the "luck of the draw."

For all operations, Earth stations should listen to the downlink frequency and transmit only when the Shuttle is in range and the astronauts are on the air. Listen for any instructions from the astronauts as to specific uplink frequencies in use during the current pass. Also, listen to the uplink frequencies before transmitting to avoid interference to other users.

In addition to the U.S. SAREX ham gear in the Shuttle mid-deck, an additional ham radio station will be flown in the German spacelab module. This station, designated SAFEX (for Spacelab Amateurfunk-Experiment), includes a 2-meter FM downlink and a 70-cm FM uplink capability. A dual band (2-meter/70-cm) external antenna, mounted on the German spacelab module, will be used for SAFEX contacts. Payload Specialists Schlegel and Walter expect to make a few scheduled contacts with European schools with this equipment.

The externally mounted SAFEX antenna gives the SAREX team an opportunity to compare the performance of the U.S. SAREX window mounted antenna to an externally mounted antenna. A special A/B antenna test is planned on orbits 61 and 62 using the normal SAREX downlink frequency, 145.550 MHz. During orbit 61 the crew will transmit using the SAREX window antenna and on orbit 62 the crew will use the SAFEX external antenna. Individuals in the Southeastern U.S. are welcome to help participate in this test by taking signal strength readings of the received signal for both orbit passes.

[Info via Gary Morris, KK6YB, and Frank Bauer, KA3HDO]

* ARSENE LAUNCH DELAY *
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Bernard, F6BVP and Michel F2GM, report that an accident damaged the omnidirectional antenna of the ASTRA satellite, thus the Ariane V56 launch is delayed 10 days if the antenna is repairable, or 3 weeks if it must be replaced.

[Info by James P. Dugal, N5KNX]

★ MESSAGE FROM MIR ★

=====

In a packet radio communications exchange between Mir cosmonauts and Amateur Radio operator Dave Larson, N6JLH, cosmonaut Alex recently conveyed the following thoughts:

Children are our future and we are ready for a dialog with them. Today (12-Apr-93) we are involved in the French experiments "Illuzion" and "Viminal". Systems on-board Mir are working well.

I am the EVA engineer. Gennadiy Manakov is the test pilot. I have a daughter, Lyouba, 13 years old. Gennadiy has a daughter, 16, and a son, Alexsey, 8. We would also like for our children to make friends with others through communication with others. We are travelling around the world every 90 minutes at an altitude of 400 kilometers. The Earth is very beautiful, and is home for us all.

Best 73, Alex

Joe Dreifuss, WA2GSY, reports the cosmonauts were busy with EVA activities scheduled on April 19, 23, and 27th.

★ PHASE 3D FREQUENCIES ★

=====

At the P3D transponder meeting in Muenchen (Germany), the following frequencies were chosen for the P3D satellite:

Downlink frequencies (Satellite to Earth)

1. 10 GHz (3cm) 10.451000 - 10.451500 GHz
2. 2.4 GHz (13 cm) 2400.500 - 2400.900 MHz
3. 435 MHz (70 cm) 436.000 - 436.400 MHz
4. 29 MHz (10 m) 29.310/29.320/29.330/29.340/29.350 MHz
 one frequency selected by the control station.

Uplink frequencies (Earth to Satellite)

1. 1.2 GHz (23 cm) A: 1269.000 - 1269.500 MHz
 B: 1269.500 - 1270.000 MHz

2. 435 MHz (70 cm) A: 435.200 - 435.700 MHz
B: 436.000 - 436.500 MHz
3. 145 MHz (2 m) 145.800 - 145.975 MHz

All bands except the 29 MHz band are switched in a matrix and allow any configuration of operational modes. Minor last minute changes or additions are still possible if necessary depending on transponder builders. A more detailed frequency plan will be distributed as soon as all final technical details are available.

[Info via Freddy de Guchteneire ON6UG, IARU Satellite Coordinator]

* FEEDBACK/INPUT WELCOMED *

=====

Mail to SpaceNews should be directed to the editor (John, KD2BD) via any of the following paths:

FAX : 1-908-747-7107
UUCP : ...catfish.ocpt.ccur.com!ka2qhd!kd2bd
PACKET : KD2BD @ NN2Z.NJ.USA.NA
INTERNET : kd2bd@ka2qhd.ocpt.ccur.com -or- kd2bd@amsat.org

MAIL : John A. Magliacane, KD2BD
Department of Engineering and Technology
Advanced Technology Center
Brookdale Community College
Lincroft, New Jersey 07738
U.S.A.

<<-- SpaceNews: The first amateur newsletter read in space! ->>

/EX

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John A. Magliacane, KD2BD * /\ * Voice : 1-908-224-2948
Advanced Technology Center |/\| Packet : KD2BD @ NN2Z.NJ.USA.NA
Brookdale Community College |/\| Internet: kd2bd@ka2qhd.ocpt.ccur.com
Lincroft, NJ 07738 * \/\ * Morse : -. -.. ..--- -..

Date: 21 Apr 93 22:41:57 +1000
From: pacbell.com!sgiblab!muninari.oz.au!metro!usage!csdvax.csd.unsw.edu.au!
u1066579@network.UCSD.EDU
Subject: AM Moulation Question
To: info-hams@ucsd.edu

Hi,

I have a quick question about AM modulation systems. I wondered why most broadcast transmitters modulate the final RF stage? Are there any disadvantages to modulating stages prior to the final RF stage.

Best Wishes,

Henry.

Email u1066579@csdvax.csd.unsw.edu.au

Date: Sat, 24 Apr 1993 04:48:32 GMT
From: dds1!eff!world!rdg@uunet.uu.net
Subject: Driving Across U.S. on Route 80 and 2m...
To: info-hams@ucsd.edu

Well, I am moving from the Boston area to the Palo Alto California area and am going to be making the move (in part) by driving. In order to make the trip in a reasonable time I plan to take Interstate 80 for pretty much most of the way.

Any suggested check-in's on 2m that I can look for along the way to help pass the time and distance?

Many thanks in advance and 73!

Rich Goldstein KA2TMT

Date: 23 Apr 1993 17:04:41 GMT
From: topaz.bds.com!topaz.bds.com!ron@uunet.uu.net
Subject: no-code defense
To: info-hams@ucsd.edu

> My father is an original Tech (KA7PMI), he's the one that got me interested.

Hey, I got it, not original Tech..."Tech Classic!"

Date: 24 Apr 93 11:00:11 GMT
From: anomaly.sbs.com!kd1hz@uunet.uu.net
Subject: no-code defense
To: info-hams@ucsd.edu

miked@nauvax.ucc.nau.edu writes:

>I am currently a no-code (N7YIR). I plan to upgrade as soon as I am finished
>with school. My wife and I are both full-time students and we have two kids
>so I do not have a lot of "extra" time to study code.

If you're so busy, how did you have time to study the Element 2 and 3A
question pools?

MD

--
-- Michael P. Dignan / Sex is hereditary. If your
-- Domain: mpd@anomaly.sbs.com / parents never had it, chances
-- AT&TNet: +1 401 273 4669 / are you won't either...
-- Telebit: +1 401 455 0347 /

Date: Fri, 23 Apr 1993 21:14:12 GMT
From: dog.ee.lbl.gov!pasteur!agate!howland.reston.ans.net!usc!
sol.ctr.columbia.edu!eff!world!mulvey@network.UCSD.EDU
Subject: Paddle key question
To: info-hams@ucsd.edu

Hello!

Can anyone tell me if there is a convention when hooking up paddles: i.e.
is the right paddle normally di or dah? Also, any pointers on proper
techniques for using them? (I'd hate to learn bad habits early in my
career. :-)

Thanks,
- Rich

(Anxiously awaiting my Tech+ ticket. :-)

--
Rich Mulvey mulvey@world.std.com "A thing of beauty is a joy forever:
{&&, ||} 73476.1142@compuserve.com its loveliness increases; it will
Katy Mulvey (The new Mrs Mulvey! :-) pass into nothingness..."

Date: Sat, 24 Apr 1993 01:00:31 GMT
From: usc!wupost!csus.edu!netcom.com!eaubery@network.UCSD.EDU
Subject: Paddle key question
To: info-hams@ucsd.edu

> Can anyone tell me if there is a convention when hooking up paddles: i.e.

>is the right paddle normally di or dah? Also, any pointers on proper
>techniques for using them? (I'd hate to learn bad habits early in my
>career. :-)

I think that the convention is for the thumb to be dit and the index
finger be dah. If you use your right hand this would mean that the dah is
the left paddle, and vice-versa if you use your left hand.

As a right hander, one thing I wish I had done from the start is to learn
to send with my left hand. The big advantage is that you can then send at
the same time as you write. This is especially useful for contests, where
you can then log at the same time as sending. Fortunately, it's a lot easier
to learn to send with the "other" hand than to write with the "other" hand.

The other recommendation would be to learn to send "iambic" style right
away. That is to "squeeze" both paddles for sequences of dit-dahs or
dah-dits. So for example, sending C would be a "squeeze" contacting the
dah side first instead of alternating between dah and dit twice. This
makes things much easier as you get to sending faster.

-eric

Date: Sat, 24 Apr 1993 18:11:14 GMT
From: sdd.hp.com!elroy.jpl.nasa.gov!swrinde!gatech!howland.reston.ans.net!
darwin.sura.net!sgiblab!sgigate!odin!chuck.dallas.sgi.com!adams@network.UCSD.EDU
Subject: Paddle key question
To: info-hams@ucsd.edu

In article <eauberyC5yqsw.JD2@netcom.com>, eaubery@netcom.com (Eric Aubery)
writes:

|> > Can anyone tell me if there is a convention when hooking up paddles: i.e.
|> >is the right paddle normally di or dah? Also, any pointers on proper
|> >techniques for using them? (I'd hate to learn bad habits early in my
|> >career. :-)

|>
|> I think that the convention is for the thumb to be dit and the index
|> finger be dah. If you use your right hand this would mean that the dah is
|> ^^^-dit

|> the left paddle, and vice-versa if you use your left hand.

|>
|> As a right hander, one thing I wish I had done from the start is to learn
|> to send with my left hand. The big advantage is that you can then send at
|> the same time as you write. This is especially useful for contests, where
|> you can then log at the same time as sending. Fortunately, it's a lot easier
|> to learn to send with the "other" hand than to write with the "other" hand.

NPP Nuclear Power Plant
 OASIS Operational Area Satellite Information System (new CA system 1993)
 OAECC FCC Operational Area Emergency Communications Committee
 OES Office of Emergency Services (be sure to specify whether city, county, or State)
 PAO Public Affairs Office(r)
 PC Personal Computer (generally refers to IBM compatible)
 PIO Public Information Officer
 RACES Radio Amateur Civil Emergency ServiceRO Radio Officer
 SAM State Administrative Manual (CA)
 SCC State Coordination Center
 SCCN State Coordination Center North (aka SOC)
 SCCS State Coordination Center South
 SECC FCC State Emergency Communications Committee
 SECURE State Emergency Capability Using Radio Effectively. 2-8 MHz HF-SSB radio frequencies allocated only to State CD/ES agencies. Also called the "STACOM" in California to avoid the connotation of secure (encrypted) communications.
 SO Sheriff's Office or Department
 SOC State Operations Center (OES HQ, Sacramento)
 STACOM The 2-8 MHz State OES HF-SSB radio system. (See SECURE).
 USFS U.S. Forest Service (Department of Agriculture)
 VIP Volunteers-in-Prevention. (CDF)
 WAN Wide area network. A computer network outside of a facility. See LAN
 EOM

 RACES Bulletins are archived on the Internet at ucsd.edu in hamradio/races and can be retrieved using FTP.

 Date: Fri, 23 Apr 93 17:35:46 PDT
 From: amdahl!grafex!ka6etb@uunet.uu.net
 Subject: Raising our profile
 To: info-hams@ucsd.edu

jim@sys6626.bison.mb.ca (Jim Jaworski) writes:

]...[
 > Yes, I agree that we, as Amateur Radio operators need to get out the
 > message that will eventually break the old stereotypes.

This is a beautiful project for ham clubs.

- o Get the schools involved. Offer a demonstration of ham radio activity, then offer a class to interested students.

- o Set up a booth at any local or regional activity (wine festival, dandelion festival, etc.) and take NTS traffic. It's great PR for amateur radio, and the NTS folks would love the traffic.
- o If your club is having a particularly interesting speaker (an astronaut or local celebrity), invite the local media ... especially the local TV outlets. TV reaches the masses.

The original poster mentioned disaster traffic. It's true that when something bad happens we get the opportunity to shine. Follow up on that. Ops that are contacted by media have an "in". Find a way to use it.

73 de KA6ETB

 Date: 23 Apr 93 15:40:03 EDT
 From: dog.ee.lbl.gov!overload.lbl.gov!lll-winken.llnl.gov!uwm.edu!zaphod.mps.ohio-state.edu!howland.reston.ans.net!gatech!udel!news.intercon.com!psinntp!arrrl.org@network.UCSD.EDU
 Subject: STS-55 SAREX Antenna Test
 To: info-hams@ucsd.edu

Shuttle Amateur Radio EXperiment (SAREX)
 STS-55 Antenna Test

INTRODUCTION:

Here's a great opportunity for schools and hams in the southeastern United States.

Shuttle mission STS-55 is scheduled for launch on April 24, 1993.

During the flight, Motorola Amateur Radio Club members in Florida will conduct a test to assess the performance of two different SAREX antennas in space. Each participant in this experiment is supplying valuable information to the project!

During Orbit 61, the Shuttle crew will transmit a signal on 145.55 MHz using the SAREX antenna positioned in its normal orbiter window. For Orbit 62 they will transmit again on 145.55 MHz, this time using an external German SpaceLab antenna in the cargo bay of the Shuttle.

Your mission is to measure the signal strength (S-meter reading) and the time of Acquisition Of Signal (AOS) and Loss Of Signal (LOS) of the Shuttle's transmissions at regular intervals

during both of these orbits.

(For more information on STS-55 and the Antenna Test, please see February 1993 QST, page 42.)

GETTING STARTED:

1) Determine what time to listen for the transmissions. STS-55 is scheduled for launch on April 24, at 14:52 UTC. If the launch is on time, the Shuttle will near North America during Orbit 61 on April 28, at 08:55 UTC, and Orbit 62 at 10:29 UTC.

The Orbit 61 pass occurs 3 days 18 hours and 3 minutes after launch (this is known as 3/18:03 MET - Mission Elapsed Time). The Orbit 62 pass occurs at 3/19:37 MET. If the launch time is delayed, simply add the actual launch date/time to the MET values (see table below) to get the new Orbit 61 and 62 times. This is explained in more detail in the section labeled "MISSION ELAPSED TIME."

Table 1
(using a launch date and time of April 24, 14:52 UTC)

Launch	00/00:00 MET	or	Apr 24, 14:52 UTC
Orbit 61	03/18:03 MET	or	Apr 28, 08:55 UTC
Orbit 62	03/19:37 MET	or	Apr 28, 10:29 UTC

2) Synchronize your watch to WWV or any precise time source (you may phone WWV at 303-499-7111). It is important to make sure that the times you record are as accurate as possible. Record all times to the exact second.

3) Begin listening for the Shuttle a minute or two before the scheduled start of Orbit 61. The receive-only frequency is 145.55 MHz.

As soon as you start hearing the transmissions, record the time to the exact second. This is the Acquisition Of Signal (AOS) time.

Next, begin recording the signal strength of the transmissions at regular intervals. The Motorola Amateur Radio Club recommends that you record the signal strength every 15 seconds. Signal strength may be reported in S-units or the number of bars on a bar graph meter or simply estimate the signal quality ("sounds like 20 dB quieting", etc.). Record the time and signal strength readings as accurately as possible on an Orbit 61 Data sheet.

Take as much data as possible.

(Stations with advanced capability and equipment, such as a calibrated receiver, can report signal strength in dBm or microvolts. Please attach a description of the method used to calibrate the receiver, and antenna and feed line gains and losses.)

Finally, record the time when you lost the signal to the exact second. This is the Loss Of Signal (LOS) time. (The maximum time between AOS and LOS is approximately 8-10 minutes.)

4) Repeat Step 3 for Orbit 62. Do not forget to record the exact AOS and LOS times. The AOS and LOS times are just as important as the actual signal strengths, so stations with no S-meter are still supplying important information. Log all of the data on an Orbit 62 Data sheet.

5) Return station information form and all data within 10 days after the experiment to ARRL, SAREX Antenna Test, 225 Main Street, Newington CT 06111.

Thank you for your participation!

MISSION ELAPSED TIME:

How do you plan for timing Orbit 61 and Orbit 62 when you only know an approximate launch time? The best planning tool is Mission Elapsed Time (MET). That's what NASA uses to schedule crew operating schedules.

With MET, you start counting time at liftoff. Think of it this way: During countdown, the clock moves backward ("T minus 10, 9, 8 seconds, and all that). At the moment of liftoff, the clock starts moving forward.

As an example, let's say the actual launch time is April 24 at 14:00 UTC. Since Orbit 61 nears North America at Mission Elapsed Time 3 days 18 hours and 3 minutes (3/18:03 MET), then add this to the new launch time:

Apr 24 14:00 UTC +
3 days 18:03 MET = April 27 at 32:03 or April 28 at 08:03 UTC

As a result, for a April 24 launch at 14:00 UTC, Orbit 61 will occur on April 28 at 08:03 UTC.

Because of launch delays, MET is the only reasonable way to figure time during a mission.

W1AW will broadcast bulletins during the mission announcing the actual launch time and Orbit 61 and 62 times for this experiment.

DATA (Sample forms, etc.):

Please provide the following information which will be necessary for us to accurately analyzed all of the data.

NAME-
CALL-
ADDRESS-
PHONE (DAY)-
PHONE (NIGHT)-

Station Information
(attach additional sheets if necessary.)

LATITUDE-
LONGITUDE-
ELEVATION-

RADIO-
ANTENNA- (Please include the type, gain, polarization, and height.)

(If you are using an HT receiving on a portable antenna (rubber ducky) make sure to keep the receiver and antenna in the same location and in a fixed position during the duration of both orbits.)

Are you using a steerable satellite tracking antenna?

Detailed equipment configuration- (include accessories such as preamps, external meters, calibrated signal generator,)

* Return this information and all data within 10 days after the experiment to ARRL, SAREX Antenna Test, 225 Main Street, Newington, CT 06111.

ORBIT 61 DATA-

ACQUISITION OF SIG. (AOS)	DATE:	TIME (UTC):
LOSS OF SIGNAL (LOS)	DATE:	TIME (UTC):

ORBIT 61 TABLE

TIME (UTC)	SIGNAL STRENGTH	NOTES
1		
2		
3		
etc...		

ORBIT 62 DATA-

ACQUISITION OF SIG. (AOS) DATE:	TIME (UTC):
LOSS OF SIGNAL (LOS) DATE:	TIME (UTC):

ORBIT 62 TABLE

TIME (UTC)	SIGNAL STRENGTH	NOTES
1		
2		
3		
etc...		

(end)

Posted by:

Robert J Inderbitzen, NQ1R	voice: (203) 666-1541 X213
Educational Activities Department	fax: (203) 665-7531
American Radio Relay League	email: rinderbi@arrl.org
225 Main Street	ARRL BBS: (203) 666-0578
Newington, CT 06111 USA	CompuServe: 70007,3373.

Date: Fri, 23 Apr 1993 07:36:38 -0500

From: usc!zaphod.mps.ohio-state.edu!sol.ctr.columbia.edu!eff!news.kei.com!
news.oc.com!utacfd.uta.edu!rwsys!ricksys!lawton!red.uucp!terry@network.UCSD.EDU
To: info-hams@ucsd.edu

References Yeasu, cat, programhio-s

Reply-To : terry%red@lawton.lonestar.org

Subject : Re: Looking for Yeasu cat program

In <"20-Apr-93.12:25:53.EDT".*.mark_t._phillips.henr801c@Xerox.com>,
mark_t._phillips.henr801c@xerox.COM writes:

>Received: from rigel.mc.xerox.com (rigel.eso.mc.Xerox.COM) by zombi

>(4.1/SMI-4.1) id AA06954; Tue, 20 Apr 93 12:25:46 EDT

>

>

>I asked this question before, but got no response, so I'll ask once more
>before I write my own.

>

>I'm looking for a piece of software to talk to the Yeasu CAT interface
>on my FT736R. I know it exists as I saw it in action on a satellite gateway
>system video tape. The program sends/receives cryptic ascii commands to
>the RS232 add-on box on my radio, and instructs the radio to change modes,
>change channels, etc. Anybody have such a program they would like to share?

>

Mark try the ARRL. It seems to me that they posted the program list for
controlling a Yaseu. Regards, Terry.

--

DOMAIN: terry%red@lawton.lonestar.org (Terrence R. Redding)

UUCP: . . . !rwsys!lawton!red!terry (Terrence R. Redding)

PACKET: WB5LMJ @ WB5MJS.OK.USA.NA

Voice 405 536-8822, Ben's Place (Benjamin Franklin) BBS 536-6988 9p to 6a

PhD candidate, University of Oklahoma in Adult and Higher Education

Educational Advisor, American Radio Relay League

221 SW Crystal Hills Drive, Lawton, Oklahoma 73505

End of Info-Hams Digest V93 #496
